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DEPARTMENT OF ENVIRONMENTAL PROTECTION
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MAY 07 2015

Ms. Tanya Mitchell
United States Environmental Protection Agency, Region 2
New Jersey Remediation Branch
290 Broadway, 19th Floor
New York, NY 10007-1866

RE: Rolling Knolls Landfill
35 Britten Road
Chatham Township, Morris County
PI #: G000004411
Activity Number: RPC080001
Document: *Data Gap Sampling Results (Received February 2015)*

Dear Ms. Mitchell:

The New Jersey Department of Environmental Protection (Department) has completed its review of the Data Gap Sampling Results which were submitted, via email, on February 17, 2015. These sampling results were provided to the Department by EPA in regard to the Rolling Knolls Landfill site in Chatham Township / Morris County. The investigative and remedial work associated with this site is being conducted pursuant to CERCLA and the NJDEP Technical Requirements for Site Remediation at N.J.A.C. 7:26E (Tech Rules). Although the Department provided these comments to you via email on March 13, 2015, they are included here as our formal response to the submittal.

A. Soil Comments:

1. According to the legend on Figure 4a, the red-slashed area represents "Waste and debris observed on ground surface but not observed or anticipated to be below ground surface". It was noted that sub-surface soil sample results shown for samples SS-63, SD-2 and POI-14 are contradictory to this statement. Vertical delineation may be incomplete.

2. Areas of incomplete soil contamination delineation appear to include the southeastern, northwestern, and eastern areas of the landfill, and potentially, areas where it is indicated "data not yet received".

3. In addition to Human Health Soil Remediation Standards (SRS), NJDEP has soil Ecological Screening Levels (ESLs) that need to be included in the evaluation of soil sample results.

4. It was noted that lead and a few select other metals concentrations are elevated in soil and ground water on the western side of the landfill, in the red-hashed area. It appears delineation is incomplete in this area and/or this may be a potential hot spot.

B. Ground Water Comments:

1. The tables on the Figures, which list the NJDEP Soil Remediation Standards (SRS) and NJDEP Ground Water Quality Criteria (GWQC) should identify the units, which are in milligrams per kilogram (mg/kg) and parts per billion (ppb) respectively. The GWQC table should include mercury, which is a contaminant of concern with a GWQC of 2 ppb.

2. There was no sample collected from well X-7. However, this well is located outside of the observed landfill area to the northwest, and there is no soil data in the vicinity to suggest this is within a landfilled or contaminated area. Samples from other wells located fully outside of the known landfill area (i.e. X-3, X-6, MW-4, and MW-8) only had reported exceedances of iron, aluminum, and manganese. While these compounds can be considered naturally occurring, levels of these compounds are sometimes notably higher within the landfill area. This should be considered when evaluating the ground water data and when determining whether the waste within the landfill is contributing to the concentrations of these otherwise naturally occurring compounds evident in ground water.

3. Arcadis proposes six new monitoring wells (MW-11 through MW-17) which ring the site close to the perimeter of the known landfill. The NJDEP agrees that perimeter wells in these locations are necessary.

Thank you for your consideration in this matter. If you should have any questions regarding this correspondence, please contact Jill McKenzie at (609)292-1993, or email at Jill.McKenzie@dep.nj.gov.

Sincerely,

Maurice Migliarino, Section Chief
Bureau of Case Management

cc: Jill McKenzie, BCM
Steve Byrnes, BEERA
Dave VanEck, BGWPA

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MAY 08 2015

Ms. Tanya Mitchell
United States Environmental Protection Agency, Region 2
New Jersey Remediation Branch
290 Broadway, 19th Floor
New York, NY 10007-1866

RE: Rolling Knolls Landfill
35 Britten Road
Chatham Township, Morris Couty
PI #: G000004411
Activity Number: RPC080001
Document Reviewed: *Technical Memorandum on Candidate Technologies (March 2015)*

Dear Ms. Mitchell:

The New Jersey Department of Environmental Protection (Department) has completed its review of the Technical Memorandum on Candidate Technologies dated March 2015. This document was submitted pursuant to CERCLA and the NJDEP Technical Requirements for Site Remediation at N.J.A.C. 7:26E (Tech Rules). Although the Department has provided these comments to you via email on May 6, 2015, they are included here as our formal response to the referenced submittal.

A. General Comments

1. In terms of assessment of human health and environmental conditions at the site, NJDEP comments provided on the previously-submitted *Data Gap Sampling Results* (sent via email on 3/13/15) still apply to the project, but are not reiterated here. It was noted (page 12) that the TMCT states "The results of the SLERA indicated that further evaluation of potential risk is warranted."
2. Based on information and figures provided in the TMCT, delineation of contamination to the NJDEP promulgated Soil Remediation Standards (SRS), particularly in soils, is far from complete. Existing data should be closely examined to identify all areas in need of horizontal and/or vertical delineation.

B. Specific Comments

1. *Section 1.1, first paragraph,* notes that "information and understanding of site conditions (physical and chemical) gathered during the Remedial Investigation (RI) activities and summarized in the Site Characterization Summary Report (SCSR, Arcadis 2012) provide the basis for the technology screening in the TMCT." The NJDEP currently has only one hard copy of the SCSR in its archives. Since the SCSR contains useful information, and is often referenced

in the TMCT, it is requested that the USEPA forward a digital copy of this report to the NJDEP Case Manager for ease of future reference by the DEP case team.

2. *Figure 7, Groundwater Analytical Results*, provides data from existing wells from samples collected in December 2007 and February 2008. Arcadis should incorporate data from the wells and temporary well points which were sampled in December 2014, which were provided in the Data Gap Interim Report, or explain why these data were not considered in the revised TMCT. Sampling results from December 2014 included compounds not otherwise reported in Figure 7 (e.g. 4,4-DDT, dieldrin, cadmium, chromium, copper, cyanide, nickel, mercury, vanadium, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and total PCBs).

3. *Section 4.3.2, Institutional Controls*, should note that the NJDEP will require a Classification Exception Area (CEA) for ground water at the site since the Ground Water Quality Criteria for the Class IIA ground water are not being met or will not be met at the site. The ARRCS at N.J.A.C. 7:26C-7.3 contains the requirements for establishing, revising and removing a CEA for existing ground water contamination at the site, which includes use of the CEA/Well Restriction Area (WRA).

4. *Table 1, Constituent Classes*. The ground water section states that PCBs were eliminated from further evaluation, but PCBs were reported above the Ground Water Quality Criterion of 0.5 ppb in the December 2014 samples from TWP-3, TWP-4, and TWP-8. Similarly, PAHs were excluded because the "constituent class [was] not detected at concentrations greater than Groundwater Quality Standard". However, PAHs (e.g. benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene) were reported in SVOC SIM samples in several temporary well points. Arcadis should reconsider the elimination of these constituent classes.

Please incorporate these comments into the letter that the USEPA will be sending as its response to the above referenced submittal.

Thank you for your consideration in this matter. If you have any questions regarding this correspondence, please contact Jill McKenzie at (609) 292-1993, or email at Jill.McKenzie@dep.nj.gov.

Sincerely,

Maurice Migliarino, Section Chief
Bureau of Case Management

cc: Jill McKenzie, BCM
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June 11, 2015

Ms. Tanya Mitchell
United States Environmental Protection Agency, Region 2
New Jersey Remediation Branch
290 Broadway, 19th Floor
New York, NY 10007-1866

RE: Rolling Knolls Landfill
35 Britten Road
Chatham Township, Morris County
PI #: G000004411
Activity Number: RPC080001
Documents Reviewed: *Addendum 1 to Data Gap Sampling & Analysis Plan (dated April 2015)*
Addendum1 to Quality Assurance Project Plan (dated April 2015)

Dear Ms. Mitchell:

The New Jersey Department of Environmental Protection (Department) has completed a review of Addendum 1 to the Data Gap Sampling & Analysis Plan (Sampling Plan) and Addendum 1 to the Quality Assurance Project Plan (QAPP) which were submitted pursuant to CERCLA and the NJDEP Technical Requirements for Site Remediation at N.J.A.C. 7:26E (Tech Rules).

The above referenced QAPP included tables of proposed sampling methodologies for the next phase of investigative work at the site. The referenced Sampling Plan included updated site information in the form of tables and figures showing results from recent "Data Gaps" field investigation sampling efforts to delineate soil, sediment, surface water, and ground water contamination around the landfill areas and the proposed locations of additional delineation samples to be collected at the site.

The NJDEP has reviewed the above documents, and offers the following comments.

A. <u>Comments on Addendum 1 to the QAPP</u>

1. **QAPP Worksheet #18:** Please request revisions to the QAPP to stipulate that soil and sediment samples will be collected in 6 inch increments [as stipulated in the NJPDES Field Sampling Procedures Manual (FSPM)] rather than the 1 foot intervals that are proposed. Although this would have ideally been done throughout the SI and RI process, it should be incorporated into the final stages of the delineation work associated with the site. In consideration of the historic data which included 1 foot sampled intervals, at least two delineation samples in 6 inch increments should be collected at each location at which horizontal delineation is proposed. For example, if the 0-1 foot interval is being delineated, samples should be collected at 0-6 inches (except for VOC samples) and

at 6 inches – 12 inches. Additional sampled intervals will be necessary at each proposed boring location in order to complete the vertical delineation of the identified contamination.

2. **QAPP Worksheet #20:** Addendum 1 to the QAPP limits the parameters to be analyzed at each proposed sampling point. Given the level of unpredictability in the distribution of the many contaminants associated with the site, please include all site-related parameters in the proposed delineation sampling. Based on conversations between the EPA Project Manager and the NJDEP Case Manager, it is the NJDEP's understanding that all site-specific parameters have been included in the analytical at each sampling location for each phase of the delineation, to date.

B. Comments on Addendum 1 to the Data Gaps Sampling and Analysis Plan

1. **General Comment Section 1.0**: NJDEP previously commented that in addition to Human Health-Based Soil Remediation Standards (SRS), NJDEP has issued Ecological Screening Levels (ESLs) that need to be included in the evaluation of soil, sediment, surface water, and pore water sample results. It does not appear that delineation to NJDEP's Ecological Screening Criteria is addressed in this SAP. It is assumed by NJDEP that additional delineation from what is proposed here will be required in order to complete the Ecological Assessments associated with the site. Clarification is requested in this regard.

2. **General Comment Section 2.0** : It is requested that Arcadis provide a detailed discussion in a revised sampling plan Addendum in regard to whether, and how, the topographic variations across the study area have been / will be considered when selecting sampling locations and sampled intervals for delineation purposes.

3. **General Comment Section 2.1.2**: A review of the data collected to date indicates a level of unpredictability in both the horizontal and vertical distribution of contaminants across the study area. There are several sample locations that show increasing contaminant concentrations with depth (e.g. SS-46, SS-57, SS-63, SS-64, SS-73, SS-74, SS-75, SS-98, SS-101, SS-102, SS107, SS-108). This needs to be considered when designing a soil sampling delineation strategy. In consideration of this, it is requested that more than just the surficial interval be evaluated at the delineation locations. The Data Gap Sampling Plan should be revised to accommodate this concern.

4. **General Comment Section 2.0:** To assist in the development of a Sampling Plan that will address the above referenced soil delineation concerns, enclosed please find a map of the Northern and Southern Areas of the Rolling Knolls Landfill site. This map illustrates the minimum number of additional samples (from what was proposed in the April 2015 submittal) that will be necessary to fill the known data gaps. Be advised that these samples are in addition to, not in lieu of, the proposed sample locations on *Figure 3a* and *Figure 3b* of the April 2015 Addendum 1 proposal. The following sampled intervals are requested at the illustrated locations:

   a. Perimeter Locations: Perimeter samples must be collected at the marked locations beyond the landfilled boundaries with soil samples collected from the 0-6" and 6"-12" intervals to characterize and delineate contamination in the vadose zone to both the New Jersey Residential Direct Contact Soil Remediation Standard (NJ-RDCSRS)and the NJDEP Impact to Ground Water Soil Remediation Standard (NJ-IGWSRS). If the water table is at the surface, these samples will serve to characterize and delineate surface soil contamination to the NJ-RDCSRS. At these same locations, soil samples must also be collected from saturated soil in the 30-36" interval below grade to further delineate soil contamination to the NJ-RDCSRS. If recent sample

data have already been collected from any of the marked locations, clean sample results may be used to verify delineation in that location and depth or, conversely, to verify non-compliance in that location and a new soil sample collection point established out from that location. However, any existing clean perimeter sample locations will still require a vertical sample to address both the inconsistent contaminant distribution and the vertical delineation data gaps associated with the site. In addition, if the existing perimeter sample results will be used to meet the delineation requirements, the results must be compared to the strictest applicable NJDEP- SRS including, but not limited to, the IGW SRS if the samples were collected from above the saturated zone.

b. Interior Landfill Samples: These interior samples must be collected at the marked locations within the landfilled boundaries with soil samples collected from the 0-6" interval immediately beneath the bottom of landfill materials to characterize and delineate contamination in the vadose zone to the NJDEP Impact to Ground Water Soil Remediation Standard (NJ-IGWSRS). If the water table is encountered at this depth, these samples will serve to characterize and delineate soil contamination to the New Jersey Residential Direct Contact Soil Remediation Standard (NJ-RDCSRS). At these same locations, soil samples must also be collected from saturated soil just above the underlying clay layer to vertically delineate soil contamination to the NJ-RDCSRS. If the responsible party wishes to collect soil samples at a depth shallower than the top of the clay layer rather than go directly to the clay layer, NJDEP has no objections; however, the vertical limit of contamination to the appropriate standard must be documented with soil sample results below the most stringent NJ-SRS (IGW or RDCSRS, as applicable).

c. Please note that two of the requested sample locations are within the footprint of, what appears to be, surface water bodies (e.g. the sample located directly north of SS-152 and the sample located due east of SS-10). Sediment samples are requested at these locations.

5. **Section 2.1.3:** Due to the level of unpredictability noted in the distribution of the many contaminants associated with the site, a revision to the proposal is requested to include analyses for all site-related contaminants of concern at all sampling points rather than limiting the analytical to select compounds.

6. **Table 1:** Table 1 of the Sampling Plan should be revised to accommodate the comments made here in regard to number of proposed sample locations, sampled interval(s) at each boring location, analytical requirements, etc.

C. General RI Concerns

1. **General Comment**: It is not apparent that the soil data collected in regard to the Site is being compared to all of the applicable NJ Site Remediation Standards (SRS). NJDEP's *Technical Requirements for the Remediation of Contaminated Sites* (N.J.A.C. 7:26E, a.k.a. "the Tech Rules") specify the criteria by which delineation is determined to be complete. In years past, comments were provided to USEPA by the NJDEP Case Manager in regard to previous RI proposals. It is noted that those previous comments also referenced N.J.A.C. 7:26E Remedial Investigation (RI) requirements as they pertain to this Site. Be advised that the currently proposed work falls short of meeting these previously stated requirements.

   Rather than provide a point-by-point analysis of existing and proposed sampling data or locations, respectively, Arcadis is referred to N.J.A.C. 7:26E-4.2(a) 1 to determine the level of remedial investigation sampling required, based upon the future disposition they determine is appropriate for the site and surrounding properties. Please note that, regardless of future site use, areas of off-Site

contamination must be delineated horizontally and vertically to the strictest applicable NJDEP Soil Remediation Standards (SRS).

a. Please clarify that delineation to the appropriate NJ Soil Remediation Standards (SRS) will be incorporated into the design and implementation of the RI sampling activities. Based on the maps and tables presented to date, it is not apparent that the delineation data are being compared to all of the applicable NJ SRS which should include, but not be limited to, the Impact to Ground Water (IGW) SRS.

2. **General Comment**: NJDEP previously commented that areas of incomplete soil contamination delineation appear to include the southeastern, northwestern, and eastern areas of the landfillBased upon information presented, and depending on the future disposition of the Site, vertical (and horizontal) delineation may be incomplete across a large part of the landfill (again, see N.J.A.C. 7:26E-4-2(a) 1).

In addition, NJDEP had previously noted that lead and a few select other metals concentrations are elevated in soil and ground water on the western side of the landfill in red-hashed areas on the figures provided, and that delineation appears incomplete in this area and/or this area may be a potential hot spot. Depending on the disposition of the Site, Arcadis may also need to evaluate levels of PAHs to ensure compliance with the Tech Rules (e.g., whether the compliance requirement is to impact to ground water, residential, or non-residential remediation standards) within the landfilled areas. This needs to be considered when designing and implementing the RI delineation sampling.

3. **General Comment**: It is requested that when determining whether delineation is complete, that consideration be given to not only the sampled interval in relation to ground surface, but also to the elevation of the sample in relation to the elevation of the contamination being delineated. It is noted that, due to the topographic variations across the study area, some of the surficial delineation samples appear to be collected at slightly higher elevations than the contaminated interval(s) being delineated. Including the sample elevations (in addition to the sampled interval in relation to ground surface) on comprehensive data tables will enable Arcadis, the EPA and the DEP to effectively evaluate whether delineation of the identified contamination is truly complete (see comment **D.1.** below).

a. This is especially critical when delineating beyond the landfill boundaries. The mode of migration and deposition of the contamination identified beyond the landfilled areas needs to be considered. If transport of this contamination is assumed to have occurred as suspended material in runoff from the landfilled areas during storm / rainfall events, it would be critical to assess lower elevation areas that would operate as depositional zones. If other modes of deposition (i.e. artificial filling, etc.) are suspected beyond the footprint of the landfill, additional sampling locations at varying elevations, including high spots, would be warranted.

b. Please clarify how it will be determined whether the waste within the landfill is contributing to the elevated dissolved phase concentrations of what are considered to be naturally occurring compounds (e.g. iron, aluminum, and manganese). As stated in previous comments, although these compounds are considered naturally occurring, the concentrations of these metals in ground water are sometimes notably higher within the landfilled area.

D. Analytical Data Requests

1. **General Comment:** In order to properly evaluate the proposed final phase of the RI work, it is requested that Arcadis provide the following information in the requested format: A comprehensive

data results table which lists all soil results collected to date (including the most recent data gap sampling results) compared to all applicable NJ - SRS. At a minimum, the table should include the sample designations; sampled intervals; sample elevations; date of sampling; sampling results; all NJ-SRS and Screening Levels against which the data is being compared [including, but not limited to, the Residential Direct Contact Criteria (RDCC) SRS, the IGW SRS and the NJ Ecologic Screening Levels (ESLs)]; etc.. This table should be cross-referenced to maps which illustrate the locations of all samples collected, to date, in regard to the site.

2. **General Comment**: To enable a more effective review of the monitoring well proposals as well as to put the updated data in context, the following information is requested to be provided:

   a. *Monitoring Well Construction Table*. This table should include, but not necessarily be limited to, the following information for all site – related monitoring wells: total depth; well diameter; screened interval; top of casing elevation; ground surface elevation; etc. Please also include the construction specifications of any temporary well points that were advanced at the site. This table should be updated, as needed, in future reports.

   b. The well logs associated with the "x" series of wells (X-1 through X-6) installed at the site. This should include the geologic / stratigraphic logs generated during boring advancement and the final well construction logs for these wells.

   c. *Comprehensive Ground Water Summary Data Tables* for each monitoring well and temporary well point associated with the site. These tables should include all historic ground water sampling detects up to the most recent sampling event. Ideally this table will also include the hydraulic gauging data associated with each sampling event conducted at the site. If this is not possible, the hydraulic gauging data may be included on a separate table. These tables should be updated, as necessary, to include the most recent ground water quality data.

   d. Additional detail regarding the Tentatively Identified Compounds (TICs) identified in ground water at the site, including the identity and concentrations of the TICs identified in ground water during each sampling event is requested. The tabulated data include on the maps being submitted do not contain this information.

   e. Please verify that the sampling protocols required in the NJ -FSPM are being followed and that the appropriate purge and sampling documentation will be provided when reporting the data derived from these sampling events. It is noted that a low flow purge and sampling (LFPS) method is being utilized for the collection of ground water samples.

      It is noted that the interval targeted for sampling within the water column at site-related monitoring wells is variable between wells. It is not readily apparent that the worst case zones (i.e. those that coincide with the identified subsurface contamination) are being selected for low flow purge and sample collection at each monitoring well. As this may affect interpretation of the degree of landfill related impacts to the shallow water bearing zone, it is requested that consideration be given to where the pump is set during low flow purge and sample collection at each monitoring well during future sampling events.

      It is also requested that an evaluation be conducted as to the vertical hydraulic gradients that exist at the site within the monitored portion of the saturated zone. As part of this evaluation, please also determine the hydraulic relationship between the shallow ground water at the site and the wetlands / surface water bodies in the vicinity of each ground water monitoring point. It is

assumed that this hydraulic relationship may change seasonally in some areas across the site which may affect interpretations of the ground water data, especially if seasonal variability of hydraulic gradients is not considered when designing the ground water sampling schedule.

Please incorporate these comments into the letter that the USEPA will be sending to the responsible entities which are referred to, collectively, as the Group.

Thank you for your cooperation in this matter. If you have any questions, contact Jill McKenzie at (609) 292-1993, or email at Jill.McKenzie@dep.nj.gov.

Sincerely,

Maurice Migliarino, Section Chief
Bureau of Case Management

Enclosure: Sample Location Map(s)

cc: Jill McKenzie, BCM (e-copy of enclosure)
Steve Byrnes, BEERA (e-copy of enclosure)
Dave VanEck, BGWPA (e-copy of enclosure)

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August 11, 2015

Ms. Tanya Mitchell
United States Environmental Protection Agency, Region 2
New Jersey Remediation Branch
290 Broadway, 19th Floor
New York, NY 10007-1866

RE: Rolling Knolls Landfill
35 Britten Road
Chatham Township, Morris County
PI #: G000004411
Activity Number: RPC080001
Document Reviewed: *Data Gaps Sampling & Analysis Plan Addendum 1 – NJDEP Rationale Table and Figures (dated August 2015)*

Dear Ms. Mitchell:

The New Jersey Department of Environmental Protection (Department) has completed a review of the above referenced document (Data Gaps Sampling Plan Addendum 1) which was submitted pursuant to CERCLA and the NJDEP Technical Requirements for Site Remediation at N.J.A.C. 7:26E (Tech Rules).

The reviewed document included a Table indicating either concurrence with, or a requested modification for, each previously requested soil sample location; and Figures that illustrated the proposed final locations for each of the requested samples.

The NJDEP has reviewed the submitted document, and offers the following comments:

A. <u>General Comments</u>:

1. Arcadis has referenced the presence of Diffuse Anthropogenic Pollutants (DAP) as a justification for not delineating PAH contamination in the northern area of the site. Prior to entertaining any technical argument based on the presence of DAP, a proper background investigation must be conducted in order to determine the levels of DAP that would apply to the site.

2. The limited elevation data associated with the map contours that were provided to the Department is problematic. Without more detailed contour information it is difficult, if not impossible, to accurately interpret sample elevations across many areas of the site. As this information will be especially critical when completing the delineation of contaminants

associated with the site, the Department is requesting that all new sample locations be surveyed, as is required in N.J.A.C. 7:26E (Tech Rules). This is a standard requirement when collecting soil data for sites at which the NJDEP's Site Remediation Program is involved. Be advised that the Department is not requesting that previous sample locations be surveyed, but that all future locations be properly surveyed.

3. Although it was not discussed in the spreadsheet that was included in the August 3, 2015, soil sampling proposal, the Department would like to clarify the intervals to be sampled at each boring location. As discussed in its June 11, 2015 letter to EPA, and as modified here and during the June 30, 2015 conference call, the Department requests that the following intervals be sampled for analysis:

   The Perimeter borings (DEP Samples #2 through #28) should be advanced at the marked locations beyond the landfilled boundaries. These perimeter boring samples should be collected from the 0 - 1 foot surface interval for non-VOC parameters and the 6"-12" inch interval below grade interval for VOC parameters. Additional samples should be collected at these perimeter locations at the 1 – 2 foot interval below grade for non-VOC parameters and the 12" – 18" inch interval below grade for VOC parameters. Please note that this deeper sampled interval represents a modified depth from the 2 ½ to 3 foot interval which was initially requested in our June 11, 2015 correspondence to EPA. It is anticipated that this modification will leave less delineation issues open that will need to be addressed during the pre-design phase.

   The Interior Landfill borings (DEP Samples #29 through #35) should be advanced within the landfilled boundaries (as represented on Figures 3A and 3B) with soil samples collected from the 0 - 1 foot interval immediately beneath the bottom of the landfilled materials to characterize and delineate the contamination associated with the waste. At these same locations, soil samples should also be collected from a 1 foot core collected just above the underlying clay layer to vertically delineate soil contamination within the landfill boundaries. If the responsible party wishes to collect the deeper soil samples in each boring at a depth shallower than the top of the clay layer rather than go directly to the clay layer, NJDEP has no objections; however, the vertical limit of contamination to the appropriate standard must be documented with soil sample results below the applicable NJ-SRS. Each 1 foot sample in these borings should be analyzed for non-VOC parameters. A 6 inch section of each 1 foot core in these borings should be collected for VOC parameters as needed. The allowance of a 1 foot sampled interval for the non-VOC parameters that was discussed during the June 2015 conference call is being applied here to the Interior Landfilled borings as well as the perimeter borings.

4. It is the Department's understanding that any remaining delineation issues (including vertical delineation) that are not addressed during the Data Gap Sampling phase will be addressed during the Pre-Design phase.

B. Location Specific Comments

1. DEP Sample #1: OK. Arcadis proposes to eliminate this boring. This is acceptable.

2. DEP Sample #2: **NOT ACCEPTABLE**. Arcadis proposes to eliminate this boring.

Arcadis has not provided the necessary background information to claim that the PAH contamination identified in the area of the ball field (SS-03, SS-09 and SS-10) is due to DAP. As this area is considered part of the "site" being investigated, delineation of the PAH contamination is required at the requested location.

3. DEP Sample #3: OK. Arcadis proposes to move this boring 110 feet to the Southwest of its originally requested location. This is acceptable.

4. DEP Sample #4: OK. Arcadis proposes to collect this boring in the requested location.

5. DEP Sample #5: **NOT ACCEPTABLE**. Arcadis proposes to move this boring out of the topographic low spot to a low spot in along an elevated ridge.

   Based on the limited data currently available to the Department, it is not apparent that the modified location would be at the topographic low spot in relation to the landfilled areas. We request that Sample #5 be collected at its originally requested location.

6. DEP Sample #6: **CONDITIONALLY ACCEPTABLE**. Arcadis proposes to move this boring from the requested location to a low spot along an elevated ridge.

   While it is not completely evident to the Department (based on the elevation contours associated with Figure 3A), EPA has indicated that it has field- verified the relative elevation of the modified location and finds it an acceptable alternate location. The Department defers to EPA's field reconnaissance in regard to the location of this boring.

7. DEP Sample #7: OK. Arcadis proposes to collect this boring in the requested location.

8. DEP Sample #8: OK. Arcadis proposes to collect this boring in the requested location.

9. DEP Sample #9: OK. Arcadis proposes to collect this boring in the requested location.

10. DEP Sample #10: OK. Arcadis proposes to move this boring to a location 100 feet east of SS-134. This is acceptable.

11. DEP Sample #11: OK. Arcadis proposes to eliminate this boring due to its interpretation that horizontal delineation is complete at SS-138. This is acceptable as the PCB Congeners identified in SS-138 will be addressed in future Ecologic evaluations.

12. DEP Sample #12: OK. Arcadis proposes to collect this boring in the requested location.

13. DEP Sample #13: OK. Arcadis proposes to collect this boring in the requested location.

14. DEP Sample #14: OK. Arcadis proposes to collect this boring in the requested location.

15. DEP Sample #15: OK. Arcadis proposes to eliminate this boring based on the results of SS-116. This is acceptable.

16. DEP Sample #16: OK. Arcadis proposes to collect this boring in the requested location.

17. DEP Sample #17: OK. Arcadis proposes to move this boring closer to the edge of the landfilled area. This is acceptable.

18. DEP Sample #18: OK. Arcadis proposes to move this boring closer to the edge of the landfilled area. This is acceptable.

19. DEP Sample #19: OK. Arcadis proposes to move this boring closer to the edge of the landfilled area. This is acceptable.

20. DEP Sample #20: OK. Arcadis proposes to eliminate this boring as there is already a proposed soil/sediment sample (SS-169) in the general vicinity of this location. It is also noted by the Department that proposed boring SS-165 will provide additional information west of the originally requested location of #20. This is acceptable.

21. DEP Sample #21: OK. Arcadis proposes to eliminate this boring as there are already EPA requested samples (SS-168 and SW/SE-34) in the general vicinity of this boring location. This is acceptable.

22. DEP Sample #22: **NOT ACCEPTABLE.** Arcadis proposes to move #22 closer to the western edge of the landfilled area.

This is not acceptable as the revised location appears to be located at a slight topographic high relative to the surrounding surface. It is requested that the boring be advanced in the originally requested location, or at least west of the high spot on which it was proposed.

23. DEP Sample #23: OK. Arcadis proposes to collect this boring in the requested location.

24. DEP Sample #24: OK. Arcadis has proposed to eliminate this boring based on the presence of topographic features that would prevent runoff from the site from affecting this location.

Based on a closer inspection of the contours in the vicinity of this location, this is acceptable for this phase of the investigation. The need for a boring in this location will be re-assessed once the data from DEP Sample #25 is evaluated.

25. DEP Sample #25: **NOT ACCEPTABLE.** Arcadis proposes to move this boring approximately 400 feet to the Southeast of its original location. As it is not apparent how it was determined that the alternate location of #25 is at the outlet of the surface water body which straddles the northern perimeter of the landfilled area, the Department requests that this boring be advanced in its original location.

26. DEP Sample #26: **CONDITIONALLY ACCEPTABLE.** Arcadis proposes to eliminate this boring. This is conditionally acceptable providing that #25 is advanced in its originally requested location.

27. DEP Sample #27: **NOT ACCEPTABLE.** Arcadis proposes to eliminate this boring.

Arcadis has not provided the necessary background information to claim that the PAH contamination identified in the area of the ball field (SS-03, SS-09 and SS-10) is due to DAP. As this area is considered part of the "site" being investigated, delineation of the PAH contamination is required at a location north of the ball field area.

28. DEP Sample #28: OK. Arcadis proposes to collect this boring in the requested location.
29. DEP Sample #29: OK. Arcadis proposes to collect this boring in the requested location.
30. DEP Sample #30: OK. Arcadis proposes to collect this boring in the requested location.
31. DEP Sample #31: OK. Arcadis proposes to collect this boring in the requested location.
32. DEP Sample #32: OK. Arcadis proposes to collect this boring in the requested location.
33. DEP Sample #33: OK. Arcadis proposes to collect this boring in the requested location.
34. DEP Sample #34: OK. Arcadis proposes to collect this boring in the requested location.
35. DEP Sample #35: OK. Arcadis proposes to collect this boring in the requested location.

Please incorporate these comments into the letter that the USEPA will be sending to the responsible entities which are referred to, collectively, as The Group.

Thank you for your cooperation in this matter. If you have any questions, contact Jill McKenzie at (609)292-1993, or email at Jill.McKenzie@dep.nj.gov.

Sincerely,

Maurice Migliarino
Section Chief, Bureau of Case Management

cc: Jill McKenzie, BCM
Steve Byrnes, BEERA
Dave VanEck, BGWPA

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CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

September 14, 2015

Ms. Tanya Mitchell
United States Environmental Protection Agency
New Jersey Remediation Branch
290 Broadway, 19th Floor
New York, NY 10007-1866

RE: Rolling Knolls Landfill
35 Britten Road
Chatham Township, Morris County
PI #: G000004411
Activity Number: RPC080001
Documents Reviewed:
VOC Results in Soil and Sediment Samples (dated August 26, 2015)
Addendum 1 to the QAPP for the Data Gaps SAP (dated August 26, 2015)
Addendum 1 to the Data Gaps Sampling and Analysis Plan (dated August 26, 2015)

Dear Ms. Mitchell:

The New Jersey Department of Environmental Protection (Department) has completed its review of the above referenced documents which were submitted pursuant to CERCLA and the NJDEP Technical Requirements for Site Remediation at N.J.A.C. 7:26E (Tech Rules).

The referenced VOC Results submittal presented a review of VOC detects in historic soil samples; a proposal to limit VOC analyses in soils and sediments during the next sampling phase to select borings; and responses to comments included in the EPA's June 17 and August 17, 2015 correspondence. The referenced Addendum 1 to the QAPP for the Data Gap SAPs included revised worksheets and Figures which codify the revised Data Gap sampling proposal included in the August 26, 2015 submittal. The referenced Addendum 1 to the Data Gaps Sampling and Analysis Plan (Data Gaps SAPs) included a revised soil and sediment sampling proposal based partly on comments provided by EPA in its letters dated June 17 and August 17, 2015.

The Department's comments on the submittals are provided below.

A. VOC RESULTS SUMMARY REPORT AND RESPONSE TO EPA COMMENTS

1. **General Comment:** It is noted that Arcadis' August 26, 2015 responses to EPA's August 17, 2015 correspondence did not include a discussion in regard to how the issue of Diffuse Anthropogenic Pollutants (DAP) will be addressed (e.g., site-specific background study, assemblage and presentation of existing data, etc.).

2. **General Comment:** As was mentioned in previous NJDEP comments, it is our understanding that that any remaining delineation issues that are not addressed during the Data Gap Sampling phase will be addressed during the Pre-Design phase. It is noted that vertical delineation has not yet been conducted in any historic perimeter sample location.

   It is also our understanding that additional sampling other than what will be conducted during this phase of the investigation will be necessary to complete the required Ecological Assessment (i.e. BERA).

3. **General Comment 1, Paragraph 1**: Arcadis has proposed to reduce the number of samples at which VOC analysis is run as follows: *Restrict the VOC analysis to the soil samples to be collected within the interior of the landfill (SS-177 through SS-183); and to landfill perimeter samples (SD-61 and SD-62).* *THIS IS ACCEPTABLE.

   Please note that Arcadis has designated perimeter samples SD-61 and SD-62 as sediment samples even though they are located in an area that is not portrayed on the figures as being inundated. We request that the type of boring advancement and sample collection technique (soil vs sediment) for these locations be determined at the time of sample collection.

4. **Comment 5. Section 2. Additional Soil and Sediment Sampling, Paragraph 4**: Arcadis has proposed to modify the number of intervals per boring at which analytical is run for the perimeter sample locations. See the Department's response to this issue, in 5., below.

5. **Comment 6. Section 2. Additional Soil and Sediment Sampling a. Perimeter Locations, Paragraph 4:** Arcadis has proposed to modify the sampling requirements for the following sample locations:

   Perimeter samples: Arcadis has modified the perimeter sampling requirements as follows: *Collect the samples at each perimeter boring location, as required, from the 0-1 foot core interval, but hold the 1 – 2 foot core interval for contingency analysis pending results of the shallower soil sample.*

   *THIS IS NOT ACCEPTABLE. The historic data indicates a level of unpredictability in the distribution of contaminants at the site. In consideration of this unpredictability, more than just the surficial interval should be evaluated at the perimeter sampling locations during this phase of the investigation. This is especially so since only surficial samples have been collected in the low lying areas off of the landfill to date. Data do not exist which would enable an extrapolation of sample quality at 1-2 feet below grade to be made based on data quality in samples collected immediately above that zone. In consideration of this, the required samples should be collected and analyzed from both the 0 – 1 foot interval and the 1 – 2 foot interval at each boring location.

6. **Comment 6. Section 2. Additional Soil and Sediment Sampling b. Interior Landfill Samples, Paragraph 3:**

   Interior landfill samples: Arcadis has modified the landfill interior sampling requirements as follows: *Collect the samples as required from a 1 foot core immediately below the bottom of the waste material, but hold the deeper 1 foot core (immediately above the clay layer) pending the results of the shallower soil sample.*

* THIS IS NOT ACCEPTABLE given the indications of increasing contaminant concentrations with depth within the landfill boundaries. The disturbed nature of the filled area over time makes it difficult to assume a consistent vertical contaminant gradient within the boundaries of the landfill. In consideration of this, the required analyses should be run on both the shallower and the deeper 1 foot cored intervals collected from interior landfill boring locations.

B. ADDENDUM 1 TO THE QAPP FOR THE DATA GAP SAPS

1. **QAPP Worksheet #17 - Description of the sampling area (second bullet item)**: It is noted that Arcadis has designated several of the perimeter samples as sediment samples even though they are located in zones that are not portrayed on the figures as being inundated. We request that the type of boring advancement and sample collection technique employed (soil vs sediment) for the perimeter samples be determined at the time of sample collection. This is consistent with Section 2.1.1 of the updated Addendum 1 to the Data Gaps SAP (5th paragraph). Please update the narrative in all documents and the relevant tables/worksheets to reflect this.

   If there is a specific reason for treating these sample locations different from others in the same areas, please provide the reasoning.

2. **QAPP Worksheet #17 – Sample locations – Soil Samples a.**: It is not apparent that the narrative in this section in regard to the number of samples to be collected matches what is included on Worksheet #18. Please update the narrative in all documents and the relevant tables/worksheets to accurately reflect the Data Gap sampling proposals, including any changes that are necessary to accommodate NJDEP and EPA comments on this submittal.

3. **QAPP Worksheet #17 – Sample locations – Sediment samples b.**: It is not apparent that the narrative in this section in regard to the number of samples to be collected matches what is included on Worksheet #18. Please update the narrative and the relevant tables / worksheets to accurately reflect the proposals, including any changes that are necessary to accommodate NJDEP and EPA comments on this submittal.

4. **QAPP Worksheet #18 - Matrix**: It is noted that Arcadis has designated several of the perimeter samples on this worksheet as sediment samples even though they are located in areas that are not portrayed on the figures as being inundated. We request that the type of boring advancement and sample collection technique employed (soil vs sediment) for the perimeter samples be determined at the time of sample collection. This is consistent with Section 2.1.1 of the updated Addendum 1 to the Data Gaps SAP (5th paragraph). Please update Worksheet #18 to reflect this.

   If there is a specific reason for treating these sample locations different from others in the same areas, please provide the reasoning.

5. **QAPP Worksheet #18**: For Interior Landfill Samples SS-177 through SS-183, it noted that the depth for these samples is TBD. While this is acceptable, it is requested that perhaps a footnote be added to briefly explain how the depths will be determined (i.e. the first foot beneath the waste material at each boring location and a second one foot sample collected directly above the underlying clay layer).

6. **QAPP Worksheet #18**: The depth proposed for samples SD-45 through SD-69 is not consistent with either EPA's August 17, 2015 correspondence, or with the Arcadis's August 26, 2015,

responses to EPA. Worksheet #18 does not include the samples required to be collected at the 1-2 foot interval below grade which were discussed in the referenced correspondence. Please update the worksheet to reflect the correct boring depth and sampled intervals.

It is also requested that the "type" of sample collection technique listed in the worksheet for SD-45 through SD-69 (Grab Sample) be clarified. The collection techniques mentioned in the August 2015 Addendum 1 to the Data Gaps SAP for these samples include the use of either a dedicated Lexan coring device or stainless steel Macrocore sampler. It is suggested that the "Type" column for these sample locations in the worksheet be updated to be consistent with the sampling technique proposal included in the Data Gaps SAP which references specific coring devices.

C. ADDENDUM 1 TO THE DATA GAPS SAP

1. **Section 2.2.2 – Sediment Sampling Procedures, Paragraph 2:** This section describes how the various sediment samples will be collected from each 1 foot core interval at each boring. The way it is presented in the submittal indicates that the top six inches of each core will be analyzed for non-VOC contaminants and the bottom six inches of each core will be analyzed for VOC contaminants. This will result in alternate depths being analyzed for the non-VOC and the VOC parameters. While this is unavoidable for the 0 - 1 foot cores (due to VOC sample collection protocol) it will play out again in all deeper core samples.

   It is requested that Arcadis clarify if this is consistent with how the historic soil and sediment samples were collected /reported. If so, it would appear that all current surficial non-VOC data are actually from the 0 - 6 inch interval rather than the 0 - 1 foot interval that was reported. This needs to be considered when reporting historic and updated data in future reports. It is currently unknown to the NJDEP as to whether a portion of the VOC-targeted core sections remained available for homogenization with the rest of the core after VOC sample collection was completed.

2. **Section 2.2.2 – Sediment Sampling Procedures, Paragraph 2:** In regard to the proposed intervals to be sampled in each of the borings discussed in this section, there is no mention of sample collection from the 1 – 2 foot interval below grade. This is not consistent with Arcadis's August 26, 2015 Response to EPA comments where it was indicated that all perimeter sample locations would have samples collected from both the 0 - 1 foot depth interval below grade and the 1 – 2 foot depth interval below grade. It is possible that Arcadis is considering the NJDEP requested perimeter samples separate from its initially proposed data gap soil samples. Clarification is requested as to the discrepancy between the Response to Comments and the amended Data Gaps SAP in regard to proposed sampled intervals at the perimeter boring locations.

Please incorporate these comments into the letter that the USEPA will be sending to responsible entities which are referenced to, collectively, as the Group.

As always, thank you for your cooperation in this matter. If you should have any questions regarding this correspondence, please call Jill McKenzie at (609)292-1993, or email at Jill.McKenzie@dep.nj.gov.

Sincerely,

Maurice Migliarino, Section Chief
Bureau of Case Management

cc: Jill McKenzie, BCM
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